

THE
AERONAUTICAL JOURNAL
VOL.—LXIX

THE ROYAL AERONAUTICAL SOCIETY

The Journal of the Royal Aeronautical Society

INCORPORATING THE INSTITUTION OF AERONAUTICAL ENGINEERS AND THE HELICOPTER ASSOCIATION OF GREAT BRITAIN

VOLUME LXIX

JANUARY - DECEMBER 1965

Edited for the Council of The Royal Aeronautical Society

by

Joan Bradbrooke, ARAeS

Printed by the Lewes Press Wightman and Co. Ltd., Friars Walk, Lewes, Sussex
and Published by the Royal Aeronautical Society, 4 Hamilton Place, London W.1

Journal of

THE ROYAL AERONAUTICAL SOCIETY

INCORPORATING THE INSTITUTION OF AERONAUTICAL ENGINEERS AND THE HELICOPTER ASSOCIATION OF GREAT BRITAIN

Published Monthly at 4 HAMILTON PLACE, LONDON, W.1
Telephone: Grosvenor 3515-9 Telegrams: Didaskalos, London, W.1

Subscriptions: £10 10s. 0d. per annum, post free Single Copies: 17s. 6d.

Advertisements only: J. W. Williams, D.F.C., Magazine Advertising Ltd., 36-38 Whitefriars St., London, E.C.4. Fleet Street 7539

VOLUME 69

JANUARY 1965

NUMBER 649

CONTENTS

	Page
From the President	1
Notices	1
New Fellows—Library Note—The Transport Trust—International Agricultural Pilots' School—Third Cranfield Rocket Propulsion Symposium—Diary—Other Meetings—Elections—News of Members—Lecture Summaries.	
Graduates' and Students' Section	VI
The Branches	VIII
Lord Brabazon of Tara, P.C., G.B.E., M.C., Hon.LL.D., Hon.F.R.Ae.S.	1
Tools of Airline Management	J. T. Dyment 9
Atmospheric Gusts—Present State of the Art and Further Research	J. K. Zbrožek 27
Cowl Shapes of Minimum Drag in Supersonic Flow—Part I	E. A. Boyd 46
Technical Notes	49
A Correlation of Leading Edge Transition and Heat Transfer on Swept Cylinders in Supersonic Flow— <i>D. R. Topham</i> . Assessment of Thermal Fatigue Resistance of High Temperature Alloys— <i>A. Coles and D. Skinner</i> . Generalised Single Component Insulation Requirements for the Hypersonic Glide— <i>B. E. Baxter and P. D. Arthur</i> . Cylindrical Bending of Long, Flat, Rectangular Plates under Linearly Distributed Pressure— <i>J. Bruce</i> . Correspondence on Future Relationships Between Air and Ground Transport— <i>J. W. S. Brancker</i> .	
The Library	64
REVIEWS: Swifter than Eagles—Mechanical Properties of Metals—Combustion Chambers for Jet Propulsion Engines—Astronautics—Space Logistics Engineering—Materials Background to Space Technology—Micropower Electronics—Revolution in the Sky: Those Fabulous Lockheeds; the Pilots Who Flew Them—Space Exploration.	
Additions to the Library	Reports

All communications for publication in the JOURNAL should be addressed to the Editor, JOAN BRADBROOKE, A.R.Ae.S.; all communications on general matters affecting the Society should be addressed to the Secretary, A. M. BALLANTYNE, T.D., B.Sc., Ph.D., F.R.Ae.S., Hon.F.C.A.S.I., F.A.I.A.A.—at 4 HAMILTON PLACE, LONDON, W.1.

Reproduction in whole or in part of any of the papers and contributions published in this Journal is not permitted without the written consent of the Royal Aeronautical Society.
None of the papers or paragraphs must be taken as expressing the opinion of the Council of the Royal Aeronautical Society unless otherwise stated.

PRINTED BY THE LEWES PRESS, WIGHTMAN & CO. LTD., LEWES, SUSSEX, ENGLAND, AND PUBLISHED BY THE ROYAL AERONAUTICAL SOCIETY, 4 HAMILTON PLACE, LONDON W.1, ENGLAND.

The Royal Aeronautical Society

FOUNDED 1866

INCORPORATED BY ROYAL CHARTER 1949

Patron: HER MAJESTY THE QUEEN

COUNCIL 1964-1965

President: H. H. GARDNER, B.Sc., F.R.Ae.S.

President-Elect: SIR GEORGE GARDNER, K.B.E., C.B., D.Sc., Hon.F.R.Ae.S.

Past-Presidents:

AIR MARSHAL SIR OWEN JONES, K.B.E., C.B., A.F.C., B.A., D.I.C., F.R.Ae.S.,
R.A.F.(retd.)
B. S. SHENSTONE, M.A.Sc., F.R.Ae.S., F.A.I.A.A., F.C.A.S.I.
PROFESSOR A. R. COLLAR, C.B.E., M.A., D.Sc., F.R.Ae.S., F.A.I.A.A., F.C.A.S.I.

Vice-Presidents:

A. D. BAXTER, M.Eng., F.R.Ae.S.
AIR COMMODORE F. R. BANKS, C.B., O.B.E., C.G.I.A., F.R.Ae.S., Hon.F.A.I.A.A.
M. B. MORGAN, C.B., M.A., F.R.Ae.S.

Members:

E. P. BEDFORD, A.R.Ae.S. (*President of the Southern Africa Division*)
PROFESSOR J. A. J. BENNETT, D.Sc., Ph.D., F.R.Ae.S., F.A.I.A.A.
(*Also Chairman, Rotorcraft Section*)
MAJOR G. P. BULMAN, C.B.E., B.Sc., F.R.Ae.S.
R. H. BURRIN, Grad.R.Ae.S. (*Chairman, Graduates' and Students' Section*)
SIR SYDNEY CAMM, C.B.E., Hon.F.R.Ae.S.
DR. W. CAWOOD, C.B., C.B.E., B.Sc., F.R.Ae.S.
A. V. CLEAVER, F.R.Ae.S., A.F.A.I.A.A.
(*Chairman, Astronautics and Guided Flight Section*)
SIR ROBERT COCKBURN, K.B.E., C.B., M.Sc., Ph.D., F.R.Ae.S.
L. P. COOMBS, C.B.E., D.F.C., B.Sc.(Eng.), F.C.G.I., Hon.F.R.Ae.S., F.A.I.A.A.
(*President of the Australian Division*)
B. CORNTHWAITE, A.F.R.Ae.S. (*President of the New Zealand Division*)
E. B. DOVE, A.F.R.Ae.S.
SIR WILLIAM FARREN, C.B., F.R.S., Hon.F.R.Ae.S., Hon.F.A.I.A.A.
SIR ARNOLD HALL, M.A., F.R.S., F.R.Ae.S., Hon.F.A.I.A.A.
DR. G. S. HISLOP, B.Sc., A.R.C.S.T., F.R.Ae.S.
WING COMMANDER E. J. HOLDEN, M.B.E., B.Sc., A.F.R.Ae.S., R.A.F.
D. KEITH-LUCAS, M.A., F.R.Ae.S.
DR. M. J. LIGHTHILL, F.R.S., F.R.Ae.S., Hon.F.A.I.A.A.
P. G. MASEFIELD, M.A., F.R.Ae.S., Hon.F.A.I.A.A.
DR. E. S. MOULT, C.B.E., B.Sc., F.R.Ae.S.
PROFESSOR E. J. RICHARDS, O.B.E., M.A., D.Sc., F.R.Ae.S.
DR. E. W. STILL, B.Sc., A.C.G.I., F.R.Ae.S.
G. T. WANSBROUGH-WHITE, A.R.Ae.S.
K. G. WILKINSON, B.Sc., D.I.C., A.C.G.I., F.R.Ae.S.

Officers:

Hon. Treasurer: MAJOR G. P. BULMAN, C.B.E., B.Sc., F.R.Ae.S.

Solicitor: L. A. WINGFIELD, M.C., D.F.C., A.R.Ae.S.

Secretary: DR. A. M. BALLANTYNE, T.D., B.Sc., F.R.Ae.S., F.A.I.A.A., Hon.F.C.A.S.I.

Note: The President of each Division and the Chairman of each Section of the Society is a Member of Council by reason of his office.

JANUARY 1965